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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,064	01/04/2002	Joe Gaidjergis	319578007US1	3578

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EXAMINER

POE. MICHAEL I

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,064

Applicant(s)

GAIDJIERGIS ET AL.

Examiner

Michael I. Poe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20020104, 20020507.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Amendments

1. Applicant's amendment filed on January 26, 2005 has been entered. Based upon the entry of this amendment, existing claims 17, 18, 23, 24, 38, 49 and 50 have been amended, existing claims 1-16 have been canceled, and no new claims have been added. Claims 17-55 are currently pending.

Election/Restrictions

2. Applicant's election without traverse of Group II, claims 17-55 in the reply filed on January 26, 2005 is acknowledged. It is noted that all non-elected claims (e.g., claims 1-16) have been cancelled by the applicant's amendment filed on January 26, 2005.

Priority

3. It is noted that this application appears to claim subject matter disclosed in prior Application No. 09/415,088, filed October 8, 1999. A reference to the prior application must be inserted as the first sentence(s) of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

In the instant case, although the specification includes the necessary reference to the prior application, the reference does not provide the current status of the parent application referenced (e.g., now U.S. Patent No. 6,468,453).

Specification

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claims 48 and 55 recite that the clearance between the holes in the support plate and the punches is approximately 0.18-0.39 inches; however, this recited range for the clearance (e.g., 0.18 to 0.39 inches) is only disclosed in the specification with reference to the diameter of the holes and is not disclosed with reference to the clearance. As such, the specification does not provide proper antecedent basis for the claimed size of the clearance in claims 48 and 55.

The examiner believes that the recited size of the clearance in claims 48 and 55 is a typographical error and was intended to be 0.04-0.07 inches as provided in the applicant's original disclosure. As such, for the purpose of this Office action, the examiner has interpreted claims 48 and 55 as reciting a clearance between the holes in the support plate and the punches of approximately 0.04-0.07 inches.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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6. Claims 17-55 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 6,468,453 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 17-55 of U.S. Patent No. 6,468,453 B1 fully encompass the subject matter of claims 17-55 of the instant application as further discussed hereafter.

The claims of U.S. Patent No. 6,468,453 B1 are generally narrower in scope than the claims of the instant application; therefore, the claims of U.S. Patent No. 6,468,453 B1 fully encompass and render obvious the claims of the instant application. Note that, if frustoconical plugs were ejected as taught by the claims of U.S. Patent No. 6,468,453 B1, the formed openings would obviously be tapered and have a first dimension of the punches on one side of the panel and a second, larger dimension of the holes at the other side of the panel as claimed in the current application. The chart below provides the correspondence between the claims of the instant application and the claims of U.S. Patent No. 6,468,453 B1.

Claims of Instant Application	Corresponding claims of U.S. Patent No. 6,468,453 B1
17 -19	1 and 2
20	1-3
21	1, 2 and 4
22	1, 2 and 5
23 - 25	13 and 14
26	13 - 15
27	13, 14 and 16
28	13, 14 and 17
29	13, 14 and 18
30	13, 14 and 19
31	8
32	8 and 9
33	8 and 10
34	8 and 11
35	8 and 12
36	8 and 18
37	8 and 19
38	1
39	1
40	1
41	1 and 3
42	1
43	1
44	1
45	1 and 3
46	1 and 4
47	1 and 5

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Claims of Instant Application	Corresponding claims of U.S. Patent No. 6,468,453 B1
48	1 and 3
49-51	1 and 6
52	1, 3 and 6
53	1, 4 and 6
54	1, 5 and 6
55	1, 3 and 6

Claim Objections

7. Claim 18 is objected to because of the following informalities: (1) "the full length of" should be deleted after "length" (first occurrence) on line 3 of claim 18. Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 19, 25 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 19, 25 and 32 recite a fiber-cement panel having a thickness of approximately 0.25-0.31635 inches. Claims 19, 25 and 32 further recite that the punches penetrate into the panel to a depth of approximately 0.0625-0.9375 inches without passing the punches completely through the panel. These recitations are confusing when taken in view of each other. Specifically, if the panel has a maximum thickness of about 0.31635 inches, it would be impossible for the punches to penetrate into the panel to a depth of about 0.9375 inches without passing the punches completely through the panel because the penetration depth would be greater than the thickness of the panel. The examiner believes that the claimed maximum penetration depth is a typographical error and was intended to be about 0.1875 inches as disclosed in the specification. As such, for the purpose of this Office action, the examiner has interpreted claims 19, 25 and 32 as reciting penetrating the punches into the panel to a depth of approximately 0.0625-0.1875 inches without passing the punches completely through the panel.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 17, 18 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,962,941 (Kober) in view of U.S. Patent No. 4,580,374 (Quinnell).

Claims 17 and 18

Kober teaches a method for perforating and trimming boards of filamentary material (a method of fabricating) including providing a fiber plate 3 made using asbestos fibers held together by a hydraulic binder such as cement (providing a fiber-cement panel having a length, a width and a thickness); depositing the fiber plate 3 on one of a series of trays 7 linked together into an endless chain passing about terminal rollers; passing each of the trays 7 into a press 1 (placing the fiber-cement panel between) comprising an upper platen 9 having a plurality of punch means 8 for punching an array of holes in the fiber plate 3 (a punch assembly; the punch assembly having a punch plate and a plurality of punches coupled to the punch plate) and a lower platen 5 for supporting the fiber plate 3 during perforating and trimming (a support assembly); and lowering the upper platen 9 such that the punch means 8 punch perforations in the fiber plate and drive plugs out of bores 11 located in the lower platen 5 (the support assembly having a support plate with a plurality of holes; driving the punches at least substantially simultaneously into and through at least a portion of the thickness of the fiber-cement panel to form a plurality of apertures in the fiber-cement panel by ejecting plugs from the fiber-cement panel through the holes in the support surface) (column 1, lines 13-17; column 3, lines 12-27; column 4, lines 19-39). As illustrated in Figures 1 and 2, Kober further teaches lowering all of the punch means 8 into fiber plate 3 at substantially the same time (driving the punches comprises penetrating the punches into the fiber-cement panel along the full length of the fiber-cement panel in one stroke of the punches).

Kober does not specifically teach that the boards are capable of being used as soffit boards. However, Quinnell teaches a soffit and fascia system comprising cement-based asbestos boards for use

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as the soffit boards including a plurality of ventilation slots that are formed in each soffit board (column 1, lines 15-28; column 2, lines 25-38). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use the punching process of Kober to form the soffit boards taught by Quinnell to provide a rapid and economical method for producing a low cost soffit and fascia system.

Neither Kober nor Quinnell specifically teaches that the thickness of the soffit boards is approximately 0.25 - 0.625 inches. However, the examiner takes Official notice that it was generally well known in the art at the time of the applicant's invention to produce cement-fiber soffit boards having thicknesses of about $\frac{1}{4}$ " to $\frac{1}{2}$ " (i.e., 0.25 to 0.50 inches) as claimed. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to produce a cement-fiber soffit board having a thickness in the claimed range according the process of Kober in view of Quinnell as was well known in the art to provide a cement-fiber soffit board with good durability and sufficient strength to allow punching of the ventilation slots.

Claim 31

Kober teaches a method for perforating and trimming boards of filamentary material (a method of fabricating) including providing a fiber plate 3 made using asbestos fibers held together by a hydraulic binder such as cement; depositing the fiber plate 3 on one of a series of trays 7 linked together into an endless chain passing about terminal rollers; passing each of the trays 7 into a press 1 (placing the fiber-cement panel between) comprising an upper platen 9 having a plurality of punch means 8 for punching an array of holes in the fiber plate 3 (a punch assembly; the punch assembly having a punch plate and a plurality of punches coupled to the punch plate and a plurality of punches projecting from the punch plate) and a lower platen 5 for supporting the fiber plate 3 during perforating and trimming (a support assembly); and lowering the upper platen 9 such that the punch means 8 punch perforations in the fiber plate and drive plugs out of bores 11 located in the lower platen 5 (the support assembly having a support plate with a plurality of holes) (column 1, lines 13-17; column 3, lines 12-27; column 4, lines 19-39). As illustrated in Figures 1 and 2, Kober further teaches lowering all of the punch means 8 into fiber plate 3 at substantially the same time (forming a plurality of apertures in the fiber-cement panel at least substantially

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simultaneously by driving the punches at least substantially simultaneously through the fiber-cement panel).

With regard to the concept of driving the punches through only a portion of the fiber-cement panel without passing the punches completely through the panel, the examiner stipulates that Kober indirectly teaches this concept as further discussed hereafter. Kober further teaches that the upper platen 9 is provided with trimming blades 25 whose cutting edges are engageable against lead anvil strips 26 inset in the trays 7 to trim the edges all around the fiber plate 3 as the array of holes are punched through the fiber plate 3 (column 3, line 65 - column 4, line 2). As illustrated in the Figures, Kober further teaches that the punch means 8 are slightly shorter, but definitely no longer, in length than the trimming blades 25. If the travel of the trimming blades 25 and the upper platen 9 stops when trimming blades 25 engage against lead anvil strips 26 as taught and the punch means 8 are slightly shorter in length than the trimming blades 25, the punch means 8 in the process of Kober would obviously only pass through a portion of the fiber plate 3 and would obviously be prevented from passing completely through the fiber plate 3 as claimed.

Kober does not specifically teach that the boards are capable of being used as soffit boards. However, Quinnell teaches a soffit and fascia system comprising cement-based asbestos boards for use as the soffit boards including a plurality of ventilation slots that are formed in each soffit board (column 1, lines 15-28; column 2, lines 25-38). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use the punching process of Kober to form the soffit boards taught by Quinnell to provide a rapid and economical method for producing a low cost soffit and fascia system.

12. Claims 20-22 and 33-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,962,941 (Kober) in view of U.S. Patent No. 4,580,374 (Quinnell) and U.S. Patent No. 4,246,815 (Hugo) when taken in view of the applicant's admitted prior art in paragraph #006 of the applicant's original disclosure.

Claims 20-22 and 33-35

The discussion of Kober and Quinnell as applied to claims 17 and 31 above applies herein.

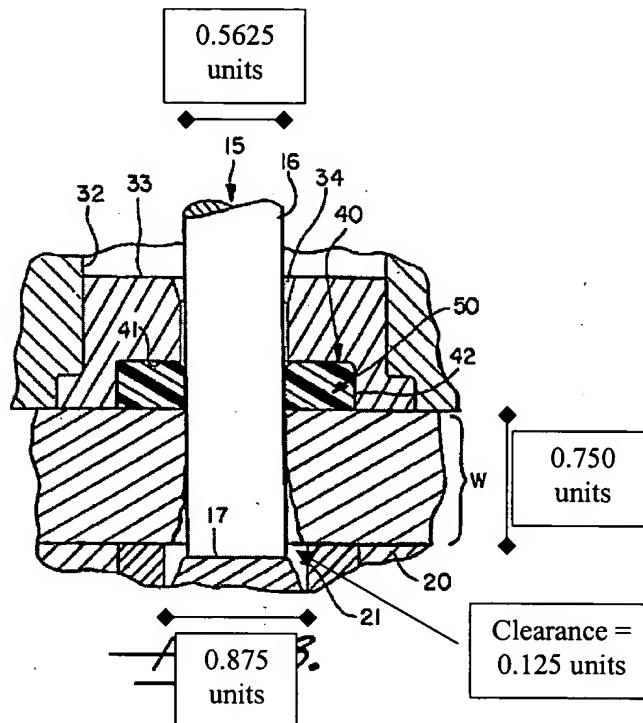
Kober further teaches that each of the punch means 8 comprises a pin 10 (the plurality of punches) carried on a plate 9b removably secured to the upper portion 9a (a flat punch plate) of the upper platen 9 (the punch assembly) (the punch assembly includes a flat punch plate and the plurality of punches project from the punch plate, the punches being spaced apart from one another, and the punches having a first end attached to the punch plate, a second end opposite the first end with a concave contact face, and a first diameter) (column 3, lines 24-27; Figures). Kober further teaches that the lower platen 5 (the support assembly) includes a plate (a flat support plate) having attached thereto a plurality of short upstanding tubes 18 each having a downwardly flaring passage 19 that terminates at its upper end at a bore 11 (the plurality of holes), for receiving a punched plug, having an inner diameter substantially equal to the outer diameter of the pins 10 (punches) (the support assembly includes a flat support plate and the plurality of holes extend through the support plate, each hole being aligned with a corresponding punch projecting from the punch plate, and the holes having a second diameter to provide a radial punch/hole clearance between the punches and the holes) (column 3, lines 28-59; Figures). As discussed above, Kober further teaches that lowering the upper platen 9 such that the punch means 8 punch perforations in the fiber plate and drive plugs out of bores 11 located in the lower platen 5 (driving the punches comprises moving the punches toward the holes and into the fiber-cement panel until the punches eject the plugs from the panel).

Although Kober teaches the basic claimed punch assembly / support assembly arrangement, Kober does not specifically teach the claimed diameters of the punches and holes and the claimed spacing of the punches. However, in this regard, Kober does teach that the perforation diameter may be changed by replacing plate 9b with another plate having differently sized pins 10 and even differently set blades 25, by replacing the plate 28, or by replacing the tubes 18 (column 4, lines 11-16). As such, Kober obviously recognizes that the arrangement of the pins 10 and the tubes 18 is a result-effective variable. Since the arrangement of the pins 10 and the tubes 18 is a result-effective variable in the process of Kober in view of Quinnell, one of ordinary skill in the art would have obviously determined the optimum

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arrangement of the pins 10 and the tubes 18 through routine experimentation based upon the desired amount of ventilation, the thickness and type of fiber plate, etc.

Neither Kober nor Quinnell specifically teaches that the radial punch/hole clearance between the punches and the holes is approximately 0.04 inches to 0.07 inches (i.e., about 10% to about 40% of the second diameter of the holes and about 16% to about 64% of the first diameter of the punches) or is approximately 4% to 30% of the second diameter of the holes or approximately 4% to 40% of the thickness of the panel as claimed. However, Hugo teaches a power press for punching thick workpieces of metal comprising a bed 10 having a die plate 20 (a flat support plate) mounted thereon with a punch receiving opening or die cavity 21 (holes) therein cooperating with a reciprocating ram 11 (a flat punch plate) coupled to a drive 12 having a punch 15 (punches) with a extended nib 16 of constant diameter and a tip 17 (column 1, lines 5-9; column 2, lines 38-52; claims). As illustrated in the marked-up version of Figure 3 below, Hugo further teaches that the punch 15 is driven into the die cavity 21 to eject a frustoconical plug from the workpiece W wherein a punch/die cavity clearance of about 14% of the diameter of the die cavity 21 (0.125 units / 0.875 units), about 22% of the diameter of the punch 15 (0.125 units / 0.5625 units), and about 17% of the thickness of the workpiece W (0.125 units / 0.750 units) exists between the outer walls of the punch 15 and the inner walls of the die cavity 21 (a radial punch/hole clearance) (to provide a radial punch/hole clearance between the punches and holes of approximately 4%-30% of the second diameter of the holes; to provide a radial punch/hole clearance between the punches and holes of approximately 4%-40% of a thickness of the fiber-cement panel). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use a punch assembly and a support assembly having the claimed punch/hole clearance in the process of Kober in view of Quinnell as taught by Hugo to provide a punching apparatus with reduced punch wear and breakage as taught by Hugo. Note that, although Hugo only teaches punching metal workpieces (see claims) and does not specifically teach punching fiber-cement sheets, Hugo must be considered analogous prior art when taken in view of the applicant's admitted prior art in paragraph #006. Specifically, paragraph #006 of the applicant's original disclosure admits that it is known in the art to use sheet metal punches to form holes in fiber-cement sheets, and



The discussion of Kober and Quinnell as applied to claim 31 above applies herein.

Neither Kober nor Quinnell specifically teaches providing a plurality of biasing elements coupled to the punch assembly wherein the biasing elements are compressible, resilient member projecting from the punch plate adjacent to the punches and withdrawing the punches from the fiber-cement panel comprises pressing resilient biasing members against the fiber-cement panel adjacent to at least a subset of the plurality of punches when the punches penetrate into the fiber-cement panel. However, Hugo teaches a power press for punching thick workpieces of metal comprising a bed 10 having a die plate 20 (a flat support plate) mounted thereon with a punch receiving opening or die cavity 21 (holes) therein cooperating with a reciprocating ram 11 (a flat punch plate) coupled to a drive 12 having a punch 15 (punches) with an extended nib 16 of constant diameter and a tip 17 wherein the punch 15 is surrounded by an elastomerically deformable, annular insert 50 having a striking surface 54 for engaging the upper

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surface of the workpiece W during punching (providing a plurality of biasing elements coupled to the punch assembly, the biasing elements being compressible, resilient members projecting from the punch plate adjacent to a punch; and withdrawing the punches from the fiber-cement panel by pressing the biasing elements against the fiber-cement panel proximate to at least a subset of the punches as the punches penetrate the fiber-cement panel) (column 1, lines 5-9; column 2, lines 38-52; column 3, lines 33-54; claims). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to surround the pins with annular inserts in the process of Kober in view of Quinnell as taught by Hugo to provide a punching arrangement having a substantially reduced breakage rate in the punching of workpieces (see specifically column 1, lines 27-33 of Hugo). Note that, although Hugo only teaches punching metal workpieces (see claims) and does not specifically teach punching fiber-cement sheets, Hugo must be considered analogous prior art when taken in view of the applicant's admitted prior art in paragraph #006.

Specifically, paragraph #006 of the applicant's original disclosure admits that it is known in the art to use sheet metal punches to form holes in fiber-cement sheets, and therefore the examiner stipulates that sheet metal punches and processes would be at least relatively pertinent to the applicant's particular problem.

Claims 38 and 42

Kober teaches a method for perforating and trimming boards of filamentary material (a method of fabricating) including providing a fiber plate 3 made using asbestos fibers held together by a hydraulic binder such as cement (providing a fiber-cement panel having a thickness); depositing the fiber plate 3 on one of a series of trays 7 linked together into an endless chain passing about terminal rollers; passing each of the trays 7 into a press 1 (placing the fiber-cement panel between) comprising an upper platen 9 having a plurality of punch means 8 for punching an array of holes in the fiber plate 3 (a punch assembly; the punch assembly having a punch plate and a plurality of punches having a first cross-sectional dimension coupled to the punch plate) and a lower platen 5 for supporting the fiber plate 3 during perforating and trimming (a support assembly so that a first side of the panel faces the punch assembly and a second side of the panel faces the support assembly); and lowering the upper platen 9 such that the punch means 8 punch perforations in the fiber plate and drive plugs out of bores 11 located in the

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lower platen 5 (the support assembly having a support plate with a plurality of holes having a second cross-sectional dimension; driving the punches through at least a portion of the fiber-cement panel to form a plurality of openings in the fiber-cement panel) (column 1, lines 13-17; column 3, lines 12-27; column 4, lines 19-39). As illustrated in Figures 1 and 2, Kober further teaches lowering all of the punch means 8 into fiber plate 3 at substantially the same time (driving the punches at least substantially simultaneously).

Kober does not specifically teach that the boards are capable of being used as soffit boards. However, Quinnell teaches a soffit and fascia system comprising cement-based asbestos boards for use as the soffit boards including a plurality of ventilation slots that are formed in each soffit board (column 1, lines 15-28; column 2, lines 25-38). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use the punching process of Kober to form the soffit boards taught by Quinnell to provide a rapid and economical method for producing a low cost soffit and fascia system.

Neither Kober nor Quinnell specifically teaches that the perforations are tapered (i.e., have the first dimension of the punches at the first side of the panel and the second dimension of the holes at the second side of the panel) and that the second cross-sectional dimension of the holes is larger than the first cross-sectional dimension of the punches. However, Hugo teaches a power press for punching thick workpieces of metal comprising a bed 10 having a die plate 20 (a flat support plate) mounted thereon with a punch receiving opening or die cavity 21 (holes) therein cooperating with a reciprocating ram 11 (a flat punch plate) coupled to a drive 12 having a punch 15 (punches) with a extended nib 16 of constant diameter and a tip 17 (column 1, lines 5-9; column 2, lines 38-52; claims). As illustrated in the marked-up version of Figure 3 below, Hugo further teaches that the punch 15 is driven into the die cavity 21 to eject a frustoconical plug from the workpiece W (driving the punches through at least a portion of the thickness of the fiber-cement panel to form a plurality of tapered openings in the fiber-cement panel; driving the punches through at least a portion of the fiber-cement panel to form a plurality of openings in the fiber-cement panel that have the first dimension of the punches at the first side of the panel and the second dimension of the holes at the second side of the panel) and that the diameter of the die cavity 21 is larger than the diameter of the punch 15 (a plurality of holes having a second cross-sectional dimension larger

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than the first cross-sectional dimension of the punches). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use the punch / support arrangement taught by Hugo in the process of Kober in view of Quinnell to provide a punching arrangement having a substantially reduced breakage rate in the punching of workpieces (see specifically column 1, lines 27-33 of Hugo). Note that, although Hugo only teaches punching metal workpieces (see claims) and does not specifically teach punching fiber-cement sheets, Hugo must be considered analogous prior art when taken in view of the applicant's admitted prior art in paragraph #006. Specifically, paragraph #006 of the applicant's original disclosure admits that it is known in the art to use sheet metal punches to form holes in fiber-cement sheets, and therefore the examiner stipulates that sheet metal punches and processes would be at least relatively pertinent to the applicant's particular problem.

Neither Kober, Quinnell nor Hugo specifically teaches that the thickness of the soffit boards is approximately 0.25 - 0.625 inches. However, the examiner takes Official notice that it was generally well known in the art at the time of the applicant's invention to produce cement-fiber soffit boards having thicknesses of about ¼" to ½" (i.e., 0.25 to 0.50 inches) as claimed. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to produce a cement-fiber soffit board having a thickness in the claimed range according the process of Kober in view of Quinnell as was well known in the art to provide a cement-fiber soffit board with good durability and sufficient strength to allow punching of the ventilation slots.

Claims 39 and 43

The discussion of Kober, Quinnell, Hugo and the admitted prior art as applied to claims 38 and 42 above applies herein.

With regard to the concept of driving the punches through only a portion of the fiber-cement panel without passing the punches completely through the panel, the examiner stipulates that Kober indirectly teaches this concept as further discussed hereafter. Kober further teaches that the upper platen 9 is provided with trimming blades 25 whose cutting edges are engageable against lead anvil strips 26 inset in the trays 7 to trim the edges all around the fiber plate 3 as the array of holes are punched through the

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fiber plate 3 (column 3, line 65 - column 4, line 2). As illustrated in the Figures, Kober further teaches that the punch means 8 are slightly shorter, but definitely no longer, in length than the trimming blades 25. If the travel of the trimming blades 25 and the upper platen 9 stops when trimming blades 25 engage against lead anvil strips 26 as taught and the punch means 8 are slightly shorter in length than the trimming blades 25, the punch means 8 in the process of Kober would obviously only pass through a portion of the fiber plate 3 and would obviously be prevented from passing completely through the fiber plate 3 as claimed.

Claims 40 and 44

The discussion of Kober, Quinnell, Hugo and the admitted prior art as applied to claims 38 and 42 above applies herein.

Neither Kober nor Quinnell specifically teaches driving the punches completely through the fiber-cement panel to eject the plugs from the fiber-cement panel. However, as illustrated in Figure 3, Hugo further teaches that the punch 15 is driven into the die cavity 21 to eject a frustoconical plug from the workpiece W (driving the punches comprises passing the punches along a stroke path completely through the fiber-cement panel and ejecting the plugs from the panel in the direction of the punch stroke). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to drive the punches completely through the fiber plate in the process of Kober in view of Quinnell as taught by Hugo to assure that the plugs were completely ejected from the fiber plate.

Claims 41 and 45-48

The discussion of Kober, Quinnell, Hugo and the admitted prior art as applied to claims 38 and 42 above applies herein.

Kober further teaches that each of the punch means 8 comprises a pin 10 carried on a plate 9b removably secured to the upper portion 9a of the upper platen 9 (the punches are arranged in an array and have a diameter) (column 3, lines 24-27; Figures). Kober further teaches that the lower platen 5 includes a plate having attached thereto a plurality of short upstanding tubes 18 each having a downwardly flaring passage 19 that terminates at its upper end at a bore 11, for receiving a punched plug, having an inner diameter substantially equal to the outer diameter of the pins 10 (the holes are

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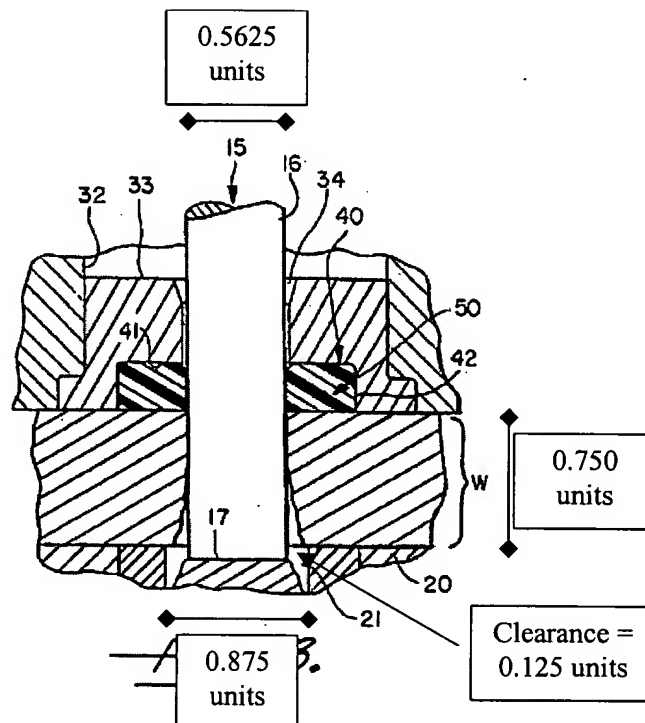
arranged in a corresponding array and have a diameter) (column 3, lines 28-59; Figures). As discussed above, Kober further teaches that lowering the upper platen 9 such that the punch means 8 punch perforations in the fiber plate and drive plugs out of bores 11 located in the lower platen 5 (driving the punches comprises moving the punches along a punch stroke into the fiber-cement panel until the punches eject plugs from the panel in the direction of the punch stroke).

Although Kober teaches the basic claimed punch assembly / support assembly arrangement, Kober does not specifically teach the claimed diameters of the punches and holes. However, in this regard, Kober does teach that the perforation diameter may be changed by replacing plate 9b with another plate having differently sized pins 10 and even differently set blades 25, by replacing the plate 28, or by replacing the tubes 18 (column 4, lines 11-16). As such, Kober obviously recognizes that the arrangement of the pins 10 and the tubes 18 is a result-effective variable. Since the arrangement of the pins 10 and the tubes 18 is a result-effective variable in the process of Kober in view of Quinnell and Hugo, one of ordinary skill in the art would have obviously determined the optimum arrangement of the pins 10 and the tubes 18 through routine experimentation based upon the desired amount of ventilation, the thickness and type of fiber plate, etc.

Neither Kober nor Quinnell specifically teaches that the radial punch/hole clearance between the punches and the holes is approximately 0.04 inches to 0.07 inches (i.e., about 10% to about 40% of the second diameter of the holes and about 16% to about 64% of the first diameter of the punches) or is approximately 4% to 30% of the second diameter of the holes or approximately 4% to 40% of the thickness of the panel as claimed. However, Hugo teaches a power press for punching thick workpieces of metal comprising a bed 10 having a die plate 20 mounted thereon with a punch receiving opening or die cavity 21 (holes) therein cooperating with a reciprocating ram 11 coupled to a drive 12 having a punch 15 (punches) with a extended nib 16 of constant diameter and a tip 17 (column 1, lines 5-9; column 2, lines 38-52; claims). As illustrated in the marked-up version of Figure 3 below, Hugo further teaches that the punch 15 is driven into the die cavity 21 to eject a frustoconical plug from the workpiece W wherein a punch/die cavity clearance of about 14% of the diameter of the die cavity 21 (0.125 units / 0.875 units), about 22% of the diameter of the punch 15 (0.125 units / 0.5625 units), and about 17% of the thickness of the workpiece W (0.125 units / 0.750 units) exists between the outer walls of the punch 15 and the inner

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walls of the die cavity 21 (a radial punch/hole clearance) (to provide a radial punch/hole clearance between the punches and holes of approximately 4%-30% of the second diameter of the holes; to provide a radial punch/hole clearance between the punches and holes of approximately 4%-40% of a thickness of the fiber-cement panel). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use a punch assembly and a support assembly having the claimed punch/hole clearance in the process of Kober in view of Quinnell as taught by Hugo to provide a punching apparatus with reduced punch wear and breakage as taught by Hugo.



Claims 49 and 50

Kober teaches a method for perforating and trimming boards of filamentary material (a method of fabricating) including providing a fiber plate 3 made using asbestos fibers held together by a hydraulic binder such as cement (providing a fiber-cement panel having a length, a width and a thickness); depositing the fiber plate 3 on one of a series of trays 7 linked together into an endless chain passing about terminal rollers; passing each of the trays 7 into a press 1 (placing the fiber-cement panel between)

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comprising an upper platen 9 having a plurality of punch means 8 for punching an array of holes in the fiber plate 3 (a punch assembly; the punch assembly having a punch plate and a plurality of punches having a first cross-sectional dimension coupled to the punch plate) and a lower platen 5 for supporting the fiber plate 3 during perforating and trimming (a support assembly so that a first side of the panel faces the punch assembly and a second side of the panel faces the support assembly); and lowering the upper platen 9 such that the punch means 8 punch perforations in the fiber plate and drive plugs out of bores 11 located in the lower platen 5 (the support assembly having a support plate with a plurality of holes having a second cross-sectional dimension; driving the punches through at least a portion of the fiber-cement panel to form a plurality of openings in the fiber-cement panel) (column 1, lines 13-17; column 3, lines 12-27; column 4, lines 19-39). As illustrated in Figures 1 and 2, Kober further teaches lowering all of the punch means 8 into fiber plate 3 at substantially the same time (driving the punches at least substantially simultaneously; driving the punches comprises punching holes in the fiber-cement panel along a full length of the panel in one punch stroke).

Kober does not specifically teach that the boards are capable of being used as soffit boards. However, Quinnell teaches a soffit and fascia system comprising cement-based asbestos boards for use as the soffit boards including a plurality of ventilation slots that are formed in each soffit board (column 1, lines 15-28; column 2, lines 25-38). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use the punching process of Kober to form the soffit boards taught by Quinnell to provide a rapid and economical method for producing a low cost soffit and fascia system.

Neither Kober nor Quinnell specifically teaches that the second cross-sectional dimension of the holes is larger than the first cross-sectional dimension of the punches. However, Hugo teaches a power press for punching thick workpieces of metal comprising a bed 10 having a die plate 20 (a flat support plate) mounted thereon with a punch receiving opening or die cavity 21 (holes) therein cooperating with a reciprocating ram 11 (a flat punch plate) coupled to a drive 12 having a punch 15 (punches) with a extended nib 16 of constant diameter and a tip 17 (column 1, lines 5-9; column 2, lines 38-52; claims). As illustrated in the marked-up version of Figure 3 below, Hugo further teaches that the punch 15 is driven into the die cavity 21 to eject a frustoconical plug from the workpiece W (driving the punches through at

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least a portion of the thickness of the fiber-cement panel to form a plurality of openings in the fiber-cement panel) and that the diameter of the die cavity 21 is larger than the diameter of the punch 15 (a plurality of holes having a second cross-sectional dimension larger than the first cross-sectional dimension of the punches). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use the punch / support arrangement taught by Hugo in the process of Kober in view of Quinnell to provide a punching arrangement having a substantially reduced breakage rate in the punching of workpieces (see specifically column 1, lines 27-33 of Hugo). Note that, although Hugo only teaches punching metal workpieces (see claims) and does not specifically teach punching fiber-cement sheets, Hugo must be considered analogous prior art when taken in view of the applicant's admitted prior art in paragraph #006. Specifically, paragraph #006 of the applicant's original disclosure admits that it is known in the art to use sheet metal punches to form holes in fiber-cement sheets, and therefore the examiner stipulates that sheet metal punches and processes would be at least relatively pertinent to the applicant's particular problem.

Neither Kober nor Quinnell specifically teaches pressing a compressible biasing element against the first side of the fiber-cement panel as the punches move along the punch stroke. However, Hugo teaches a power press for punching thick workpieces of metal comprising a bed 10 having a die plate 20 mounted thereon with a punch receiving opening or die cavity 21 (holes) therein cooperating with a reciprocating ram 11 coupled to a drive 12 having a punch 15 (punches) with a extended nib 16 of constant diameter and a tip 17 wherein the punch 15 is surrounded by an elastomerically deformable, annular insert 50 having a striking surface 54 for engaging the upper surface of the workpiece W during punching (pressing a compressible biasing element against the first side of the fiber-cement panel as the punches move along the punch stroke) (column 1, lines 5-9; column 2, lines 38-52; column 3, lines 33-54; claims). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to surround the pins with annular inserts in the process of Kober in view of Quinnell as taught by Hugo to provide a punching arrangement having a substantially reduced breakage rate in the punching of workpieces (see specifically column 1, lines 27-33 of Hugo).

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Neither Kober, Quinnell nor Hugo specifically teaches that the thickness of the soffit boards is approximately 0.25 - 0.625 inches. However, the examiner takes Official notice that it was generally well known in the art at the time of the applicant's invention to produce cement-fiber soffit boards having thicknesses of about ¼" to ½" (i.e., 0.25 to 0.50 inches) as claimed. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to produce a cement-fiber soffit board having a thickness in the claimed range according the process of Kober in view of Quinnell as was well known in the art to provide a cement-fiber soffit board with good durability and sufficient strength to allow punching of the ventilation slots.

Claim 51

The discussion of Kober, Quinnell, Hugo and the admitted prior art as applied to claim 49 above applies herein.

Neither Kober nor Quinnell specifically teaches driving the punches completely through the fiber-cement panel to eject the plugs from the fiber-cement panel. However, as illustrated in Figure 3, Hugo further teaches that the punch 15 is driven into the die cavity 21 to eject a frustoconical plug from the workpiece W (driving the punches comprises passing the punches along a stroke path completely through the fiber-cement panel and ejecting the plugs from the panel in the direction of the punch stroke). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to drive the punches completely through the fiber plate in the process of Kober in view of Quinnell as taught by Hugo to assure that the plugs were completely ejected from the fiber plate.

Claims 52-55

The discussion of Kober, Quinnell, Hugo and the admitted prior art as applied to claim 49 above applies herein.

Kober further teaches that each of the punch means 8 comprises a pin 10 carried on a plate 9b removably secured to the upper portion 9a of the upper platen 9 (the punches are arranged in an array and have a diameter) (column 3, lines 24-27; Figures). Kober further teaches that the lower platen 5 includes a plate having attached thereto a plurality of short upstanding tubes 18 each having a

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downwardly flaring passage 19 that terminates at its upper end at a bore 11, for receiving a punched plug, having an inner diameter substantially equal to the outer diameter of the pins 10 (the holes are arranged in a corresponding array and have a diameter) (column 3, lines 28-59; Figures). As discussed above, Kober further teaches that lowering the upper platen 9 such that the punch means 8 punch perforations in the fiber plate and drive plugs out of bores 11 located in the lower platen 5 (driving the punches comprises moving the punches into the fiber-cement panel to form openings).

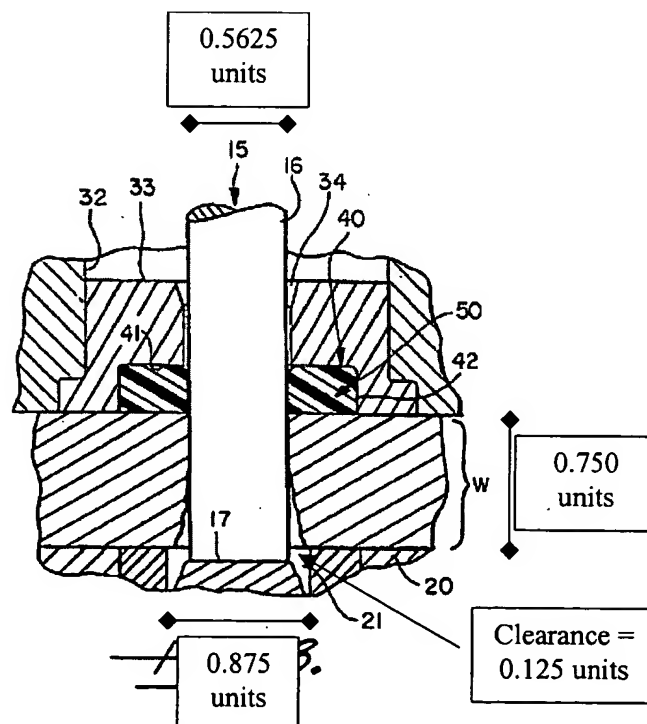
Although Kober teaches the basic claimed punch assembly / support assembly arrangement, Kober does not specifically teach the claimed diameters of the punches and holes. However, in this regard, Kober does teach that the perforation diameter may be changed by replacing plate 9b with another plate having differently sized pins 10 and even differently set blades 25, by replacing the plate 28, or by replacing the tubes 18 (column 4, lines 11-16). As such, Kober obviously recognizes that the arrangement of the pins 10 and the tubes 18 is a result-effective variable. Since the arrangement of the pins 10 and the tubes 18 is a result-effective variable in the process of Kober in view of Quinnell and Hugo, one of ordinary skill in the art would have obviously determined the optimum arrangement of the pins 10 and the tubes 18 through routine experimentation based upon the desired amount of ventilation, the thickness and type of fiber plate, etc.

Note that, as discussed above with regard to claim 49, Hugo further teaches that the punch 15 is driven into the die cavity 21 to eject a frustoconical plug from the workpiece W (driving the punches comprises moving the punches into the fiber-cement panel to form openings having a first dimension at the first side of the panel and a second dimension larger than the first dimension at the second side of the panel).

Neither Kober nor Quinnell specifically teaches that the radial punch/hole clearance between the punches and the holes is approximately 0.04 inches to 0.07 inches (i.e., about 10% to about 40% of the second diameter of the holes and about 16% to about 64% of the first diameter of the punches) or is approximately 4% to 30% of the second diameter of the holes or approximately 4% to 40% of the thickness of the panel as claimed. However, Hugo teaches a power press for punching thick workpieces of metal comprising a bed 10 having a die plate 20 mounted thereon with a punch receiving opening or die cavity 21 (holes) therein cooperating with a reciprocating ram 11 coupled to a drive 12 having a punch

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15 (punches) with an extended nib 16 of constant diameter and a tip 17 (column 1, lines 5-9; column 2, lines 38-52; claims). As illustrated in the marked-up version of Figure 3 below, Hugo further teaches that the punch 15 is driven into the die cavity 21 to eject a frustoconical plug from the workpiece W wherein a punch/die cavity clearance of about 14% of the diameter of the die cavity 21 (0.125 units / 0.875 units), about 22% of the diameter of the punch 15 (0.125 units / 0.5625 units), and about 17% of the thickness of the workpiece W (0.125 units / 0.750 units) exists between the outer walls of the punch 15 and the inner walls of the die cavity 21 (a radial punch/hole clearance) (to provide a radial punch/hole clearance between the punches and holes of approximately 4%-30% of the second diameter of the holes; to provide a radial punch/hole clearance between the punches and holes of approximately 4%-40% of a thickness of the fiber-cement panel). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use a punch assembly and a support assembly having the claimed punch/hole clearance in the process of Kober in view of Quinnell as taught by Hugo to provide a punching apparatus with reduced punch wear and breakage as taught by Hugo.



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13. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,962,941 (Kober) in view of U.S. Patent No. 4,580,374 (Quinnell) and U.S. Patent No. 4,985,119 (Vinson et al.).

Claims 23 and 24

Kober teaches a method for perforating and trimming boards of filamentary material (a method of fabricating) including providing a fiber plate 3 made using asbestos fibers held together by a hydraulic binder such as cement (providing a fiber-cement panel having a thickness); depositing the fiber plate 3 on one of a series of trays 7 linked together into an endless chain passing about terminal rollers; passing each of the trays 7 into a press 1 (placing the fiber-cement panel between) comprising an upper platen 9 having a plurality of punch means 8 for punching an array of holes in the fiber plate 3 (a punch assembly; the punch assembly having a punch plate and a plurality of punches coupled to the punch plate) and a lower platen 5 for supporting the fiber plate 3 during perforating and trimming (a support assembly); and lowering the upper platen 9 such that the punch means 8 punch perforations in the fiber plate and drive plugs out of bores 11 located in the lower platen 5 (the support assembly having a support plate with a plurality of holes; driving the punches at least substantially simultaneously into and through at least a portion of the thickness of the fiber-cement panel to form a plurality of apertures in the fiber-cement panel by ejecting plugs from the fiber-cement panel through the holes in the support surface); and lifting the trays 7 off of the lower platen 5 to pull the board free at the region of the tray holes (withdrawing the punches from the fiber-cement panel without delaminating the fiber-cement panel at the apertures) (column 1, lines 13-17; column 2, lines 53-64; column 3, lines 12-27; column 4, lines 19-39). As illustrated in Figures 1 and 2, Kober further teaches lowering all of the punch means 8 into fiber plate 3 at substantially the same time (driving the punches comprises penetrating the punches into the fiber-cement panel along the full length of the fiber-cement panel in one stroke of the punches). Note that one of ordinary skill in the art would have recognized, when viewing the teachings of Kober as a whole, that the lifting off of the trays would have obviously been performed without any significant delaminating at the apertures.

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Kober does not specifically teach that the boards are capable of being used as soffit boards. However, Quinnell teaches a soffit and fascia system comprising cement-based asbestos boards for use as the soffit boards including a plurality of ventilation slots that are formed in each soffit board (column 1, lines 15-28; column 2, lines 25-38). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use the punching process of Kober to form the soffit boards taught by Quinnell to provide a rapid and economical method for producing a low cost soffit and fascia system.

Neither Kober nor Quinnell specifically teaches that the thickness of the soffit boards is approximately 0.25 - 0.625 inches. However, the examiner takes Official notice that it was generally well known in the art at the time of the applicant's invention to produce cement-fiber soffit boards having thicknesses of about ¼" to ½" (i.e., 0.25 to 0.50 inches) as claimed. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to produce a cement-fiber soffit board having a thickness in the claimed range according the process of Kober in view of Quinnell as was well known in the art to provide a cement-fiber soffit board with good durability and sufficient strength to allow punching of the ventilation slots.

Neither Kober nor Quinnell specifically teaches that the fiber plate may comprise cellulosic material instead of asbestos. However, Vinson et al. teach a method for making fiber-reinforced structures and building materials from water-curable inorganic binders, such as cement and calcium silicate, and fibers wherein the traditional asbestos fibers are replaced with natural cellulosic fibers such as softwood fibers, hardwood fibers and a variety of vegetable fibers (the fiber-cement panel comprising cement, cellulosic material, and a binder) (column 1, lines 11-29). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use cellulosic fibers as a replacement for the asbestos fibers in the process of Kober in view of Quinnell as taught by Vinson et al. to provide a fiber reinforcement with fewer safety and health concerns as set forth in Vinson et al.

14. Claims 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,962,941 (Kober) in view of U.S. Patent No. 4,580,374 (Quinnell), U.S. Patent No. 4,985,119 (Vinson et

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al.) and U.S. Patent No. 4,246,815 (Hugo) when taken in view of the applicant's admitted prior art in paragraph #006 of the applicant's original disclosure.

Claims 26-28

The discussion of Kober, Quinnell and Vinson et al. as applied to claim 23 above applies herein.

Kober further teaches that each of the punch means 8 comprises a pin 10 (the plurality of punches) carried on a plate 9b removably secured to the upper portion 9a (a flat punch plate) of the upper platen 9 (the punch assembly) (the punch assembly includes a flat punch plate and the plurality of punches project from the punch plate, the punches being spaced apart from one another, and the punches having a first end attached to the punch plate, a second end opposite the first end with a concave contact face, and a first diameter) (column 3, lines 24-27; Figures). Kober further teaches that the lower platen 5 (the support assembly) includes a plate (a flat support plate) having attached thereto a plurality of short upstanding tubes 18 each having a downwardly flaring passage 19 that terminates at its upper end at a bore 11 (the plurality of holes), for receiving a punched plug, having an inner diameter substantially equal to the outer diameter of the pins 10 (punches) (the support assembly includes a flat support plate and the plurality of holes extend through the support plate, each hole being aligned with a corresponding punch projecting from the punch plate, and the holes having a second diameter to provide a radial punch/hole clearance between the punches and the holes) (column 3, lines 28-59; Figures). As discussed above, Kober further teaches that lowering the upper platen 9 such that the punch means 8 punch perforations in the fiber plate and drive plugs out of bores 11 located in the lower platen 5 (driving the punches comprises moving the punches toward the holes and into the fiber-cement panel until the punches eject the plugs from the panel).

Although Kober teaches the basic claimed punch assembly / support assembly arrangement, Kober does not specifically teach the claimed diameters of the punches and holes and the claimed spacing of the punches. However, in this regard, Kober does teach that the perforation diameter may be changed by replacing plate 9b with another plate having differently sized pins 10 and even differently set blades 25, by replacing the plate 28, or by replacing the tubes 18 (column 4, lines 11-16). As such, Kober obviously recognizes that the arrangement of the pins 10 and the tubes 18 is a result-effective variable. Since the arrangement of the pins 10 and the tubes 18 is a result-effective variable in the process of

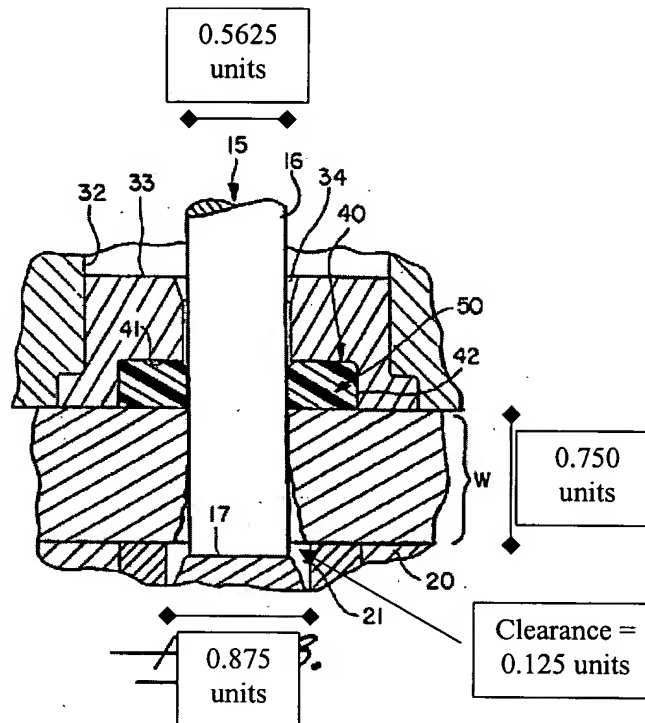
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Kober in view of Quinnell and Vinson et al., one of ordinary skill in the art would have obviously determined the optimum arrangement of the pins 10 and the tubes 18 through routine experimentation based upon the desired amount of ventilation, the thickness and type of fiber plate, etc.

Neither Kober, Quinnell nor Vinson et al. specifically teaches that the radial punch/hole clearance between the punches and the holes is approximately 0.04 inches to 0.07 inches (i.e., about 10% to about 40% of the second diameter of the holes and about 16% to about 64% of the first diameter of the punches) or is approximately 4% to 30% of the second diameter of the holes or approximately 4% to 40% of the thickness of the panel as claimed. However, Hugo teaches a power press for punching thick workpieces of metal comprising a bed 10 having a die plate 20 (a flat support plate) mounted thereon with a punch receiving opening or die cavity 21 (holes) therein cooperating with a reciprocating ram 11 (a flat punch plate) coupled to a drive 12 having a punch 15 (punches) with a extended nib 16 of constant diameter and a tip 17 (column 1, lines 5-9; column 2, lines 38-52; claims). As illustrated in the marked-up version of Figure 3 below, Hugo further teaches that the punch 15 is driven into the die cavity 21 to eject a frustoconical plug from the workpiece W wherein a punch/die cavity clearance of about 14% of the diameter of the die cavity 21 (0.125 units / 0.875 units), about 22% of the diameter of the punch 15 (0.125 units / 0.5625 units), and about 17% of the thickness of the workpiece W (0.125 units / 0.750 units) exists between the outer walls of the punch 15 and the inner walls of the die cavity 21 (a radial punch/hole clearance) (to provide a radial punch/hole clearance between the punches and holes of approximately 4%-30% of the second diameter of the holes; to provide a radial punch/hole clearance between the punches and holes of approximately 4%-40% of a thickness of the fiber-cement panel). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use a punch assembly and a support assembly having the claimed punch/hole clearance in the process of Kober in view of Quinnell and Vinson et al. as taught by Hugo to provide a punching apparatus with reduced punch wear and breakage as taught by Hugo. Note that, although Hugo only teaches punching metal workpieces (see claims) and does not specifically teach punching fiber-cement sheets, Hugo must be considered analogous prior art when taken in view of the applicant's admitted prior art in paragraph #006. Specifically, paragraph #006 of the applicant's original disclosure admits that it is known in the art to use sheet metal punches to form holes in fiber-cement

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sheets, and therefore the examiner stipulates that sheet metal punches and processes would be at least relatively pertinent to the applicant's particular problem.



Claims 29 and 30

The discussion of Kober, Quinnell and Vinson et al. as applied to claim 23 above applies herein.

Neither Kober, Quinnell nor Vinson et al. specifically teaches providing a plurality of biasing elements coupled to the punch assembly wherein the biasing elements are compressible, resilient member projecting from the punch plate adjacent to the punches and withdrawing the punches from the fiber-cement panel comprises pressing resilient biasing members against the fiber-cement panel adjacent to at least a subset of the plurality of punches when the punches penetrate into the fiber-cement panel. However, Hugo teaches a power press for punching thick workpieces of metal comprising a bed 10 having a die plate 20 (a flat support plate) mounted thereon with a punch receiving opening or die cavity 21 (holes) therein cooperating with a reciprocating ram 11 (a flat punch plate) coupled to a drive 12 having a punch 15 (punches) with a extended nib 16 of constant diameter and a tip 17 wherein the punch 15 is surrounded by an elastomerically deformable, annular insert 50 having a striking surface 54 for

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engaging the upper surface of the workpiece W during punching (providing a plurality of biasing elements coupled to the punch assembly, the biasing elements being compressible, resilient members projecting from the punch plate adjacent to a punch; and withdrawing the punches from the fiber-cement panel by pressing the biasing elements against the fiber-cement panel proximate to at least a subset of the punches as the punches penetrate the fiber-cement panel) (column 1, lines 5-9; column 2, lines 38-52; column 3, lines 33-54; claims). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to surround the pins with annular inserts in the process of Kober in view of Quinnell and Vinson et al. as taught by Hugo to provide a punching arrangement having a substantially reduced breakage rate in the punching of workpieces (see specifically column 1, lines 27-33 of Hugo). Note that, although Hugo only teaches punching metal workpieces (see claims) and does not specifically teach punching fiber-cement sheets, Hugo must be considered analogous prior art when taken in view of the applicant's admitted prior art in paragraph #006. Specifically, paragraph #006 of the applicant's original disclosure admits that it is known in the art to use sheet metal punches to form holes in fiber-cement sheets, and therefore the examiner stipulates that sheet metal punches and processes would be at least relatively pertinent to the applicant's particular problem.

Allowable Subject Matter

15. Upon the filing of a proper terminal disclaimer, claims 19, 25 and 32 would be allowable over the prior art of record if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter:

- (1) With regard to claims 19, 25 and 32, the prior art of record does not teach or suggest the claimed method of fabricating a fiber-cement soffit, as a whole, especially including providing a fiber-cement panel having a given thickness and punching the fiber-cement panel such that the punches penetrate into the panel to a depth significantly less than the given thickness without passing the punches completely through the panel [i.e., stopping penetration at a depth between about 20% (0.0625 / 0.31635) and about 75% (0.1875 /

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0.25) of the thickness of the panel as set forth in claims 19, 25 and 32]. Although Kober does suggest that the punches would not pass completely through the panel (see rejection of claim 31 for a further discussion), Kober does not suggest stopping the penetration of the punches at a depth significantly less than the thickness of the panel as discussed above.

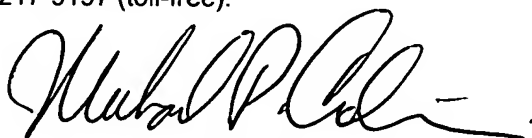
Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,799,446 (Tamlyn) has been cited of interest to show one of many examples of cement-fiber soffit boards having thicknesses in the range of $\frac{1}{4}$ " to $\frac{1}{2}$ " as claimed by the applicant. U.S. Patent No. 2,230,043, U.S. Patent No. 2,445,210, U.S. Patent No. 3,477,317, U.S. Patent No. 3,719,746, U.S. Patent No. 4,215,608, U.S. Patent No. 5,359,914, U.S. Patent No. 5,437,758 and U.S. Patent No. 6,647,845 B1 have been cited of interest to show the general state of the art at the time of the applicant's invention.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael I. Poe whose telephone number is (571) 272-1207. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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